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2014 Pesticide Safety: Moss, Poison Ivy, Poverty Grass

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Current Weed Work

Moss, Poison Ivy, and Poverty Grass

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Weed Snapshot for NE Cranberry

More than 80 species noted

- Some invasive/non-native weeds
  - Phragmites, Purple loosestrife, Japanese Knotweed

Shifts in weed populations

- Gaps from herbicides
- Changes in management
  - Water use
  - Nutrients

Weed Problems

Correct ID important for management

Market volatility

- Pick and choose weed battles

Current topics

- Moss: Haircap / Sphagnum
- Poison ivy
- Poverty grass

Moss & Cranberry

- Increasing # of growers calls about moss infestations
- Historical recommendations included:
  - Ammonium sulfate, ferrous sulfate, Casoron
- Concerns about potential crop damage with recommended high rates of Casoron and ferrous sulfate


Sphagnum


Haircap

Moss Study – Material Screen

- Horticultural Strength Acetic Acid
  5%, 10%, 20%
- Herbicidal soap
- Moss killing product
- Hydrogen peroxide (5.3%)
- Granular ferrous sulfate monohydrate ($FeSO_4$)
  - Historic rate (3oz/ft² ~ 8000 lb/acre) vs lower rates
    - ½ and ¼, + Lawn rate (~ 2% historic cranberry rate)

Moss - Applications

- 2 Sites: haircap and sphagnum (treated 5/4/13)
  - Typical moss control (ferrous sulfate) would be applied earlier in season on dormant cranberry
- Plots 1 m^2
- Liquids applied w/ CO_2-powered backpack
- Granular (Ferrous sulfate) applied by hand
- Visual evals: 1 WAT and 1 MAT

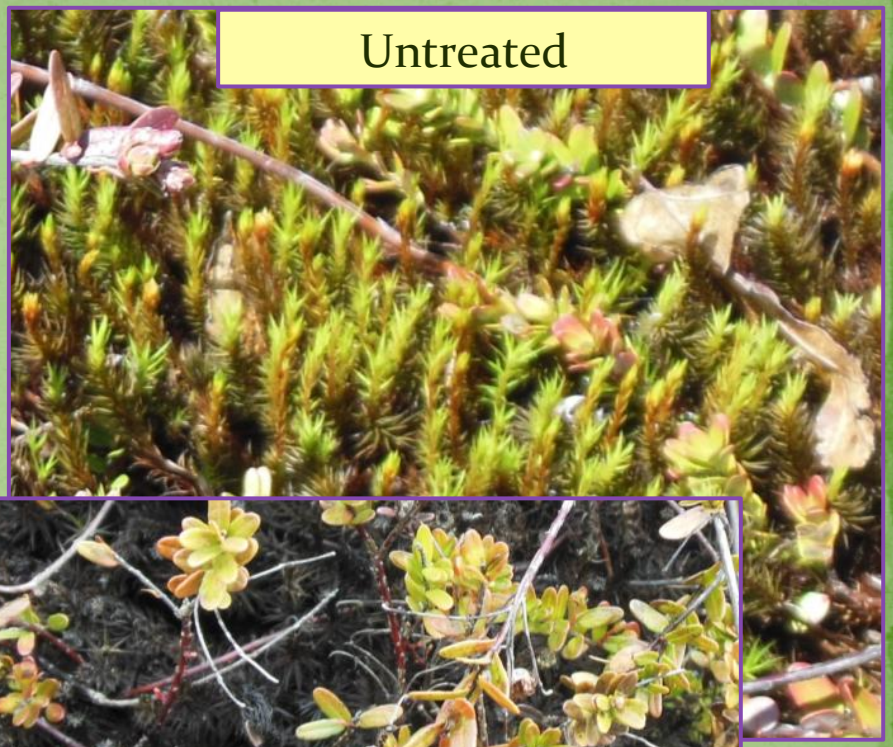
Ferrous sulfate

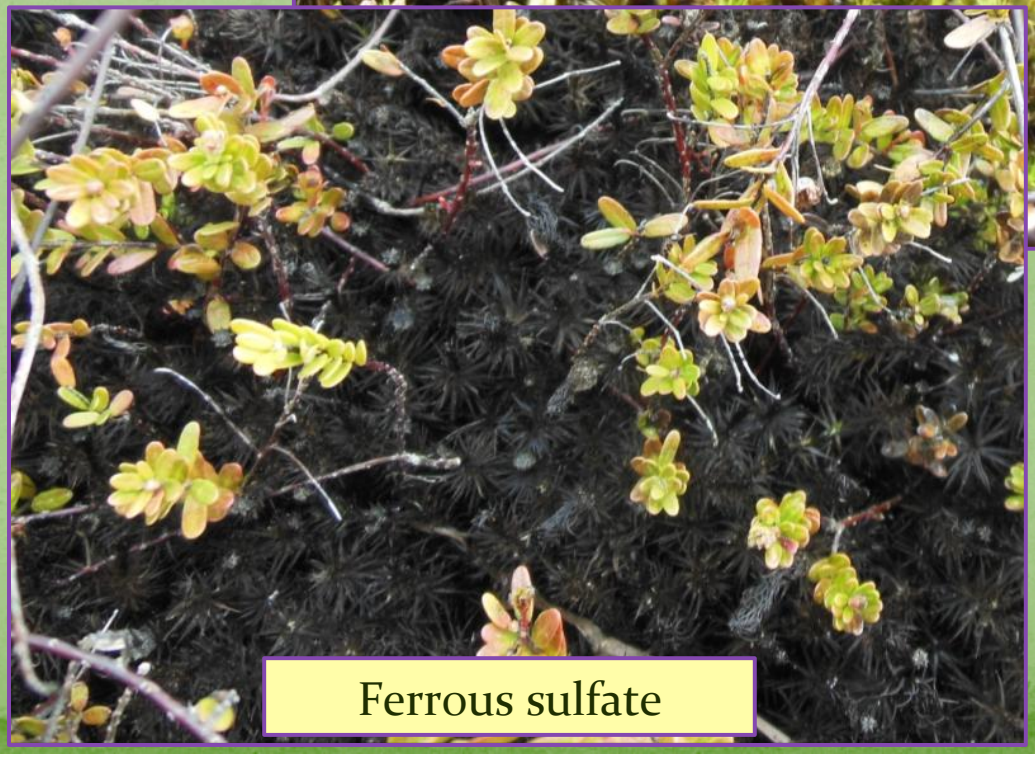
Historical rate
- effective
- visible stress to cranberry

1/2 rate
- effective
- no visible stress

1/4 rate
- control appears to lessen slightly over time

Lawn rate
- control not as dramatic
- subsides quickly





Moss Killer vs Herbicidal Soap

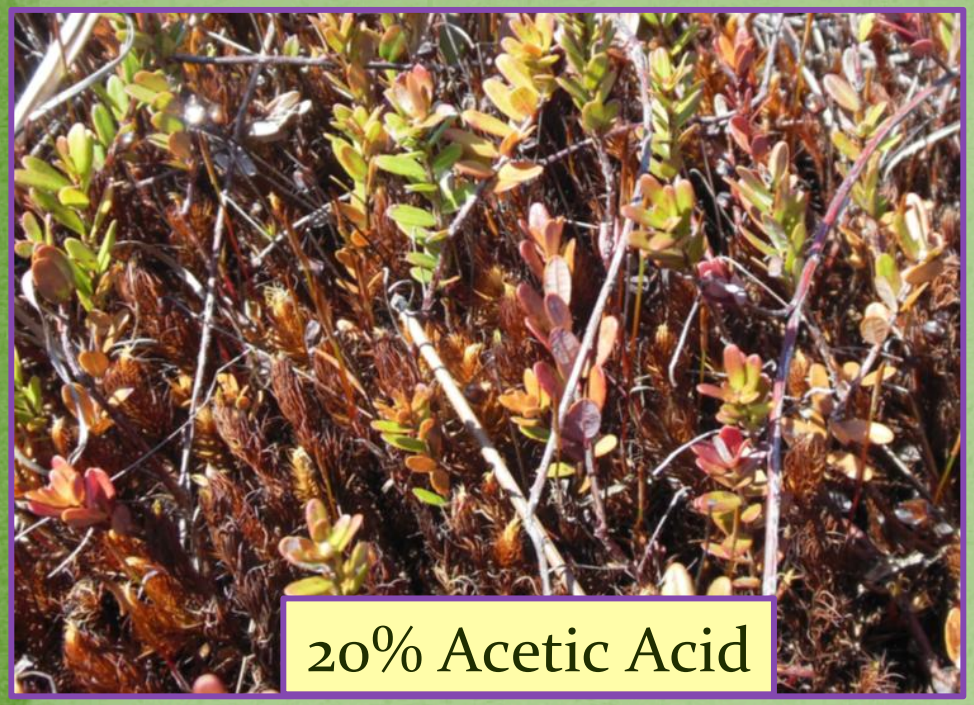
Moss killing product

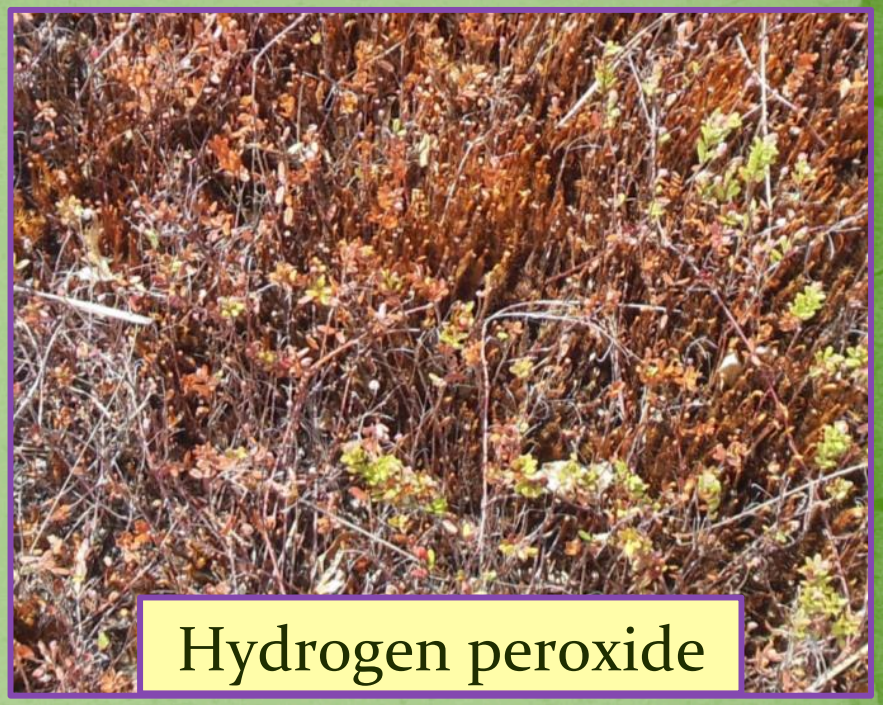
Good moss control
No cranberry damage

Herbicidal soap

Good moss control
Cranberry damage

Moss





5% and 10% AA did not have lasting moss control

CB vines recovered from damage

CB vines had severe damage

Moss - Results

- All products controlled both moss species
- Cranberry damaged by:

  Acetic acid, herbicidal soap, hydrogen peroxide
- Most promising products:
  - Lower rates of $FeSO_4$
  - Moss killer product (no phytotox and good control)

Moss - Next steps 2014

- Collect more data
  - cranberry yield, moss biomass, etc
- Vary application timing
  - Will moss outgrow control from early app?
- Try chemigation rates of moss killer

Poison Ivy

Reports from growers that tank mixes of Poast and Callisto gave good PI control

Poison Ivy Study

1 ½ oz Poast + 1 ½ oz Callisto + 1 ½ oz Crop oil

- Two treatment timings

  "Early" - 30 May + 2 weeks later

  "Late" - 19 June + 2 weeks later

- 4 grower sites (demo plots) - Large plots 4 x 4 m
- Backpack sprayer – spray to wet

Poison Ivy Results

- Cranberry injury greater for early treatment
  - High temps at first application
    - damage from crop oil?
    - Newer cranberry growth too tender?

- Fruit yield reduced by both treatments

Treatment	Usable Fruit per ft^2
Untreated	80.25
Early	11
Late	20.25

Poison Ivy Results

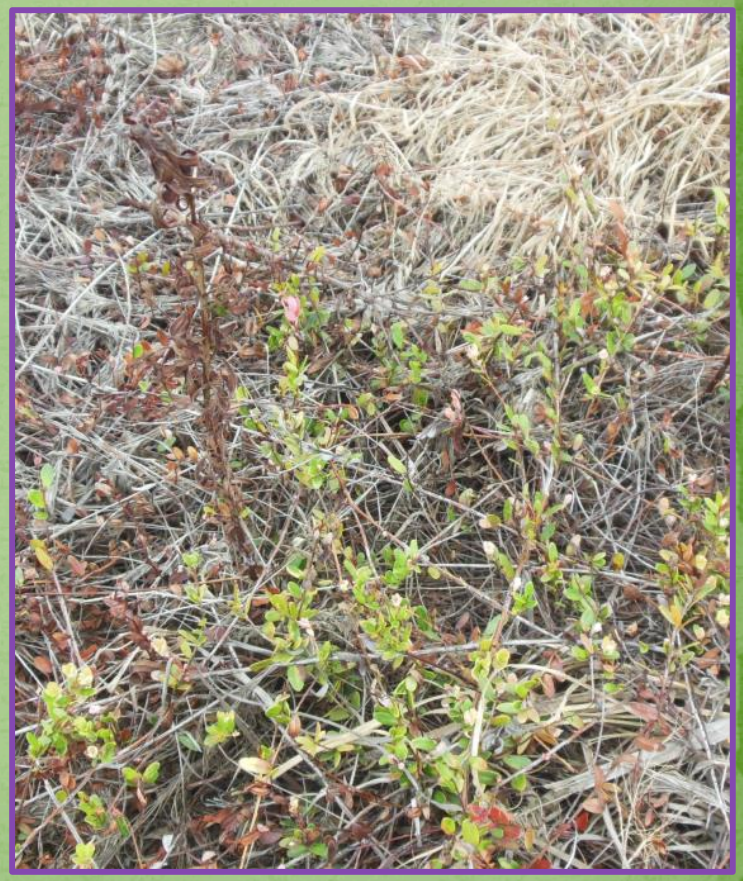
- PI cover reduced by treatment
- Area colonized by cranberry

	0 m	0.5 m	1 m	1.5 m	2 m
0 m					
0.5 m					
1 m					
1.5 m					
2 m					

	Cranberry	PI	Other Weeds	Bare
Untreated	5	14.25	5.75	0
Early	18.8	3.5	0	2.75
Late	19.5	1	0.25	4.25

Poison Ivy: Next Steps

- Plots to be evaluated again 2014
  - Effects long term?
  - Retreat 2014
- Vary herbicide mixture
  - w/ and w/o COC
  - w/ and w/o NIS
- Try different timings



Poast and Callisto vs Dodder

2 weeks after treatment

2 Months after treatment

No dodder seed produced!!!

History of Poverty Grass

- 1950's - an occasional weed
- 1980's - regularly encountered
- 2010's - problematic on many farms

Growth pattern

Very slow starter

- New growth above vines until June or later
- Many growers caught "by surprise", populations seem to explode in August

Species we call "Poverty Grass"

- **Broomsedge**
  Andropogon virginicus

- **Little Bluestem**
  Schizachyrium scoparium

Broomsedge

- Dense clumps
  - 2-4’ tall
- Prolific seed producer
  - High germination rates
- Sandy, low-fertility soils
- Shall

Little Bluestem

- Loose or dense clumps
  - 1.5 – 3’ tall
- Spreads by seed, tillers, and underground roots
  - Seed dispersal and germination not as good
- Deep-rooted

Flowering heads

Broomsedge

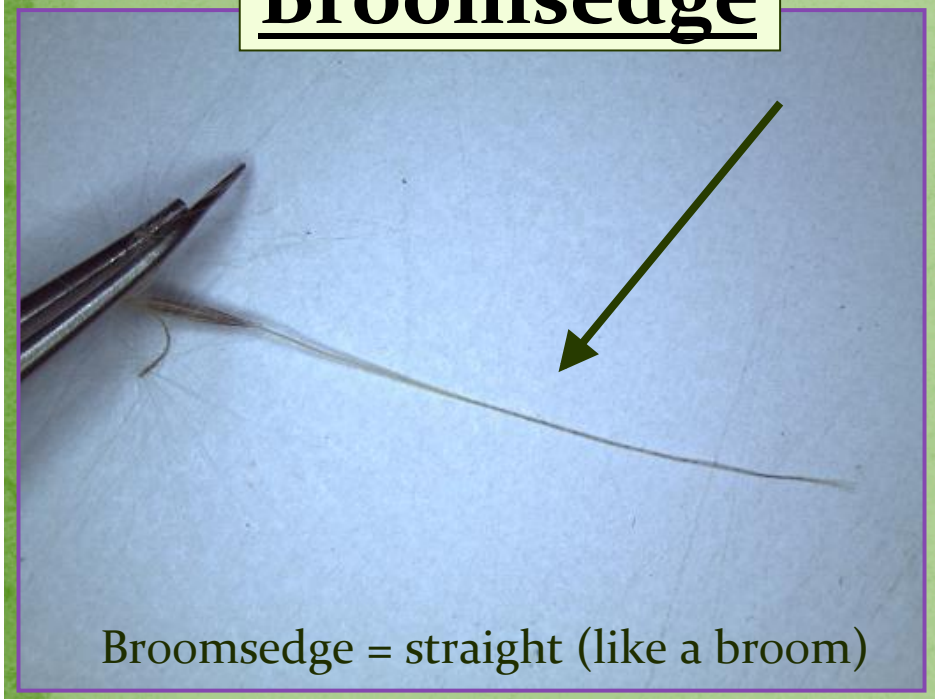
Seed clusters per branch
Clusters ~ 1.5 in.

Little Bluestem

Single seeds per branch
Clusters ~ 3 in.

Look at the awn (bristle) of the seed

Broomsedge



Broomsedge = straight (like a broom)

Little Bluestem

Little Bluestem = twisted & bent.

Poverty Grass Study

Treated in 2012 (3 different farms), Collected PG in 2013

Untreated
Devrinol (April)
Devrinol (April) followed by mowing (August)
Poast (late June)
Poast (late June) followed by mowing (August)
RoundUp (July)
RoundUp (July) followed by mowing (August)
Mow (August)
Mow 2X (August and September)
Fall Evital (November)

1 year after treatment NO differences!!!

What does this mean?

PG control needs to be long term

Control adult plants

- Kill existing clumps (digging, herbicides, etc)
- Stop seed production (mowing, herbicides)
  - Don't neglect areas around the bog

Control seeds (stop new plants)

- Devrinol works well in GH trials on broomsedge seeds
- Other PRE herbicides might also work

Controls

- High rates **Devrinol**: late April-early May
- **Select** or **Poast** (grass herbicides)

  Apply before flowering
- **Roundup** wipes
- Repeated **mowings** to prevent seeding

Reported:

- 60 - 75 #/A **Evital** in fall followed by winter sanding worked well.
- 60 #/A **Evital** in spring worked well.

A Note About RoundUp Wipes....

Wiping this

Will do nothing!

Glyphosate can only enter the plant through living tissue

Poverty Grass – Ongoing Work

Post harvest treatments

(PG continues to be green after harvest)

1. Poast
2. Devrinol (18 lbs/acre)
3. Roundup (hand held squirt bottle directed at roots of clumps)
4. Evital (80 lbs/a)
5. Hand Weeding

Questions?